

The following listing of claims is the claims presented in this application.

Listing of the claims:

Claims 1-35 (Cancelled).

Claim 36 (New): A method of generating a tissue comprising

culturing a human cell composition comprising human stem and/or progenitor cells found in any of human peripheral blood mononuclear cells, human bone marrow cells, human fetal liver cells, human cord blood cells or human spleen cells in a liquid culture medium which is replaced at a rate which is either (i) substantially continuous sufficient to obtain ex vivo human stem cell division and/or human progenitor cell expansion therein or (ii) equal to 50 to 100% daily replacement thereby providing ex vivo human stem cell division therein, while maintaining said culture under physiologically acceptable conditions; and

transferring said cultured cells into said patient to generate said tissue.

Claim 37 (New): The method of Claim 36, wherein the liquid medium is replaced at a rate equal to 50 to 100% daily replacement for a cell density of from 1×10^4 to 1×10^7 cells per ml of culture.

Claim 38 (New): The method of claim 37, wherein at least one member selected from the group consisting of human peripheral blood mononuclear cells, human bone marrow cells, human fetal liver cells, human cord blood cells, human spleen cells and mixtures thereof are cultured.

Claim 39 (New): The method of claim 36, wherein the tissue formed is any of human bone marrow, human blood, or human immune system.

Claim 40 (New): The method of claim 38, wherein human peripheral blood mononuclear cells are cultured.

Claim 41 (New): The method of claim 38, wherein human bone marrow cells are cultured.

Claim 42 (New): The method of claim 38, wherein human fetal liver cells are cultured.

Claim 43 (New): The method of claim 38, wherein human cord blood cells are cultured.

Claim 44 (New): The method of claim 38, wherein human spleen cells are cultured.

Claim 45 (New): The method of claim 38, wherein mixtures thereof are cultured.

Claim 46 (New): The method of claim 37, wherein said medium is replaced continuously.

Claim 47 (New): The method of claim 37, wherein replacement of said medium comprises perfusing fresh medium through at least part of the mass of said human stem cells.

Claim 48 (New): The method of claim 37, wherein said medium comprises animal or human sera or plasma.

Claim 49 (New): The method of claim 37, comprising maintaining glucose concentration in said medium in the range of from 5 to 20 mM, lactate concentration in said medium below about 35 mM, glutamine concentration in said medium in the range of from 1 to 3 mM, and ammonia concentration in said medium below 2.4 mM.

Claim 50 (New): The method of claim 37, further comprising removing nonadherent cells continuously, periodically, or intermittently, without disturbing adherent cells.

Claim 51 (New): The method of Claim 36, wherein the liquid medium is replaced at a rate substantially continuous sufficient to obtain ex vivo human stem cell division and/or human progenitor cell expansion therein.

Claim 52 (New): The method of claim 51, wherein at least one member selected from the group consisting of human peripheral blood mononuclear cells, human bone marrow cells, human fetal liver cells, human cord blood cells, human spleen cells and mixtures thereof are cultured.

Claim 53 (New): The method of claim 52, wherein human peripheral blood mononuclear cells are cultured.

Claim 54 (New): The method of claim 52, wherein human bone marrow cells are cultured.

Claim 55 (New): The method of claim 52, wherein human fetal liver cells are cultured.

Claim 56 (New): The method of claim 52, wherein human cord blood cells are cultured.

Claim 57 (New): The method of claim 52, wherein human spleen cells are cultured.

Claim 58 (New): The method of claim 52, wherein mixtures thereof are cultured.

Claim 59 (New): The method of claim 51, wherein said medium is replaced continuously.

Claim 60 (New): The method of claim 51, wherein replacement of said medium comprises perfusing fresh medium through at least part of the mass of said human stem cells.

Claim 61 (New): The method of claim 51, wherein said medium comprises animal or human sera or plasma.

Claim 62 (New): The method of claim 51, comprising maintaining glucose concentration in said medium in the range of from 5 to 20 mM, lactate concentration in said medium below about 35 mM, glutamine concentration in said medium in the range of from 1 to 3 mM, and ammonia concentration in said medium below 2.4 mM.

Claim 63 (New): The method of claim 51, further comprising removing nonadherent cells continuously, periodically, or intermittently, without disturbing adherent cells.

Claim 64 (New): A method of providing a therapeutic benefit to a patient in need thereof, comprising culturing a human cell composition comprising human stem and/or progenitor cells found in any of human peripheral blood mononuclear cells, human bone marrow cells, human fetal liver cells, human cord blood cells or human spleen cells, in a liquid culture

medium which is replaced at a rate which is either (i) substantially continuous sufficient to obtain ex vivo human stem cell division and/or human progenitor cell expansion therein or (ii) equal to 50 to 100% daily replacement thereby providing ex vivo human stem cell division therein, while maintaining said culture under physiologically acceptable conditions; and

transferring the cultured cells to said patient.

Claim 65 (New): The method of Claim 64, wherein the liquid medium is replaced at a rate equal to 50 to 100% daily replacement for a cell density of from 1×10^4 to 1×10^7 cells per ml of culture.

Claim 66 (New): The method of claim 65, wherein at least one member selected from the group consisting of human peripheral blood mononuclear cells, human bone marrow cells, human fetal liver cells, human cord blood cells, human spleen cells and mixtures thereof are

cultured.

Claim 67 (New): The method of claim 65, wherein human peripheral blood mononuclear cells are cultured.

Claim 68 (New): The method of claim 65, wherein human bone marrow cells are cultured.

Claim 69 (New): The method of claim 65, wherein human fetal liver cells are cultured.

Claim 70 (New): The method of claim 65, wherein human cord blood cells are cultured.

Claim 71 (New): The method of claim 65, wherein human spleen cells are cultured.

Claim 72 (New): The method of claim 65, wherein mixtures thereof are cultured.

Claim 73 (New): The method of claim 65, wherein said medium is replaced continuously.

Claim 74 (New): The method of claim 65, wherein replacement of said medium comprises perfusing fresh medium through at least part of the mass of said human stem cells.

Claim 75 (New): The method of claim 65, wherein said medium comprises animal or human sera or plasma.

Claim 76 (New): The method of claim 65, comprising maintaining glucose concentration in said medium in the range of from 5 to 20 mM, lactate concentration in said medium below about 35 mM, glutamine concentration in said medium in the range of from 1 to 3 mM, and ammonia concentration in said medium below 2.4 mM.

Claim 77 (New): The method of claim 65, further comprising removing nonadherent

cells continuously, periodically, or intermittently, without disturbing adherent cells.

Claim 78 (New): The method of Claim 64, wherein the liquid medium is replaced at a rate substantially continuous sufficient to obtain ex vivo human stem cell division and/or human progenitor cell expansion therein.

Claim 79 (New): The method of claim 78, wherein at least one member selected from the group consisting of human peripheral blood mononuclear cells, human bone marrow cells, human fetal liver cells, human cord blood cells, human spleen cells and mixtures thereof are cultured.

Claim 80 (New): The method of claim 79, wherein human peripheral blood mononuclear cells are cultured.

Claim 81 (New): The method of claim 79, wherein human bone marrow cells are cultured.

Claim 82 (New): The method of claim 79, wherein human fetal liver cells are cultured.

Claim 83 (New): The method of claim 79, wherein human cord blood cells are cultured.

Claim 84 (New): The method of claim 79, wherein human spleen cells are cultured.

Claim 85 (New): The method of claim 79, wherein mixtures thereof are cultured.

Claim 86 (New): The method of claim 78, wherein said medium is replaced continuously.

Claim 87 (New): The method of claim 78, wherein replacement of said medium comprises perfusing fresh medium through at least part of the mass of said human stem cells.

Claim 88 (New): The method of claim 78, wherein said medium comprises animal or human sera or plasma.

Claim 89 (New): The method of claim 78, comprising maintaining glucose concentration in said medium in the range of from 5 to 20 mM, lactate concentration in said medium below about 35 mM, glutamine concentration in said medium in the range of from 1 to 3 mM, and ammonia concentration in said medium below 2.4 mM.

Claim 90 (New): The method of claim 78, further comprising removing nonadherent cells continuously, periodically, or intermittently, without disturbing adherent cells.

Claim 91 (New): The method of Claim 64, wherein the therapeutic benefit provided to the patient is generation of a tissue.

Claim 92 (New): A method of providing a therapeutic benefit to a patient in need thereof, comprising culturing a human cell composition comprising human bone marrow cells in a liquid culture

medium which is replaced at a rate which is either (i) substantially continuous sufficient to obtain ex vivo human stem cell division and/or human progenitor cell expansion therein or (ii) equal to 50 to 100% daily replacement thereby providing ex vivo human stem cell division therein, while maintaining said culture under physiologically acceptable conditions; and

transferring the cultured cells to said patient to provide a therapeutic benefit of the human cell composition comprising cultured bone marrow cells.

Claim 93 (New): The method of Claim 92, wherein the liquid medium is replaced at a rate equal to 50 to 100% daily replacement for a cell density of from 1×10^4 to 1×10^7 cells per ml of culture.

Claim 94 (New): The method of claim 92, wherein said medium is replaced continuously.

Claim 95 (New): The method of claim 92, wherein replacement of said medium comprises perfusing fresh medium through at least part of the mass of said human stem cells.

Claim 96 (New): The method of claim 92, wherein said medium comprises animal or human sera or plasma.

Claim 97 (New): The method of claim 92, comprising maintaining glucose concentration in said medium in the range of from 5 to 20 mM, lactate concentration in said medium below about 35 mM, glutamine concentration in said medium in the range of from 1 to 3 mM, and ammonia concentration in said medium below 2.4 mM.

Claim 98 (New): The method of claim 92, further comprising removing nonadherent cells continuously, periodically, or intermittently, without disturbing adherent cells.